

What That which is claimed is:

1. An apparatus for conveying a wafer container to a plurality of wafer processing stations, said processing stations being aligned in an x-axis direction and having a wafer inlet, said apparatus comprising:

a horizontal conveyor positioned adjacent and below the wafer inlet of each processing station and extending in the x-direction;

a vertical conveyor positioned adjacent the wafer inlet of each processing station and being configured to convey the wafer container substantially vertically along a z-axis between a position on the horizontal conveyor and the wafer inlet; and

a controller operably associated with said horizontal and vertical conveyors to control the position of the wafer container.

2. The apparatus defined in Claim 1, wherein said horizontal conveyor comprises a roller conveyor.

3. The apparatus defined in Claim 1, wherein said vertical conveyor comprises:

a hollow housing positioned forward of the wafer inlet having side walls;

a pair of vertical translation members located on respective housing side walls; and

a pair of gripping arms mounted for vertical movement on

respective vertical translation members and extending toward each other.

4. The apparatus defined in Claim 3, wherein said vertical translation members comprise conveying screws, and wherein said gripping arms are threadedly coupled to respective ones of said conveying screws.

5. The apparatus defined in Claim 3, wherein said vertical translation members comprises hydraulic piston assemblies, each of said hydraulic piston assemblies including an extensible piston rod, and wherein said gripping arms are mounted to a respective piston rod.

6. The apparatus defined in Claim 3, further comprising a y-axis conveying device for conveying the container along a y-axis from a position forward of the wafer inlet into the wafer inlet.

7. The apparatus defined in Claim 1, wherein said vertical translation device comprises a suction head configured to apply suction to an upper surface of said container.

8. A method of loading a wafer container into one of a plurality of wafer processing stations, said processing stations being aligned in a horizontal x-axis direction and having a wafer inlet, said method comprising the steps of:

conveying the wafer container to a position below a wafer inlet and adjacent a loading apparatus;

conveying gripping arms of the loading apparatus to a lowered position
below said wafer container;

gripping said wafer container with said gripping arms; and

raising said wafer container to a raised position at a level at least as
5 high as the wafer inlet.

9. The method defined in Claim 8, further comprising the step of
conveying the container in a horizontal y-axis direction into said wafer inlet.

10 10. An apparatus for conveying a wafer container to a plurality of
wafer processing stations, said processing stations being aligned in an x-axis
direction and having a wafer inlet, said apparatus comprising:

a horizontal conveyor positioned adjacent and below the wafer inlet of
each processing station and extending in the x-direction;

15 a vertical conveyor mounted to the processing station and positioned
adjacent the wafer inlet of each processing station and being configured to
convey the wafer container substantially vertically along a z-axis between a
position on the horizontal conveyor and the wafer inlet; and

20 a controller operably associated with said horizontal and vertical
conveyors to control the position of the wafer container.

11. The apparatus defined in Claim 10, wherein said horizontal
conveyor comprises a roller conveyor.

25 12. The apparatus defined in Claim 10, wherein said vertical

conveyor comprises:

a hollow housing positioned forward of the wafer inlet having side walls;

5 a pair of vertical translation members located on respective housing side walls; and

a pair of gripping arms mounted for vertical movement on respective vertical translation members and extending toward each other.

10 13. The apparatus defined in Claim 12, wherein said vertical translation members comprise conveying screws, and wherein said gripping arms are threadedly coupled to respective ones of said conveying screws.

15 14. The apparatus defined in Claim 12, wherein said vertical translation members comprises hydraulic piston assemblies, each of said hydraulic piston assemblies including an extensible piston rod, and wherein said gripping arms are mounted to a respective piston rod.

20 15. The apparatus defined in Claim 12, further comprising a y-axis conveying device for conveying the container along a y-axis from a position forward of the wafer inlet into the wafer inlet.

16. The apparatus defined in Claim 10, wherein said vertical translation device comprises a suction head configured to apply suction to an upper surface of said container.